PROGRAM CHARTER

For

Climate Services Development

Acting Program Manager: Chet Koblinsky

Climate Goal Team Lead: Chet Koblinsky

1. EXECUTIVE SUMMARY

The Climate Services Development (CSD) Program assesses impacts of climate variability and change, supports regional adaptation strategies, and develops climate information products and tools appropriate for evolving user needs. The program supports decision makers in improving management of the sectors and areas that are sensitive to impacts from weather and climate. This includes annual losses from droughts and floods, heat and cold waves, the positive and negative impacts of El Niño and La Niña events, sea level rise, and other high impact climate events. The information CSD provides includes observations, monitoring, analysis, modeling, forecasts, assessments, supporting datasets, and stakeholder driven research and applications.

The CSD Program is addressing an increased demand for traditional climate services, such as data and forecast dissemination and customer support, as well as identifying and satisfying new requirements for information on long term climate trends, linkages between climate variability, climate change and weather extremes, assessments of vulnerability, and decision support in sectors such as drought and water management, fire, emergency preparedness, health, transportation, energy, coastal, urban, and ecosystem management. The CSD Program links producers and users of climate information, allowing decision maker inspired creation of new knowledge, processes, tools, and products to improve planning, risk management, resource allocation, impacts assessment, adaptation, mitigation, early warning, and operational response in sectors sensitive to climate variability and change. Increasing demand for climate services are met through research into decision maker needs and prototype product development; transition of research products into application and operations; and operational delivery and support of climate services. CSD relies heavily on NOAA's extensive infrastructure with more than 150 offices at the national, regional and local levels contributing, as well as their partners working at the international, national, regional, state, and local levels.

Program URLs:

http://www.weather.gov/om/csd

http://www.climate.noaa.gov/cpo_pa

http://www.weather.gov/climate

http://lwf.ncdc.noaa.gov/oa/climate/regionalclimatecenters.html

http://lwf.ncdc.noaa.gov/oa/climate/aasc.html

http://www.cdc.noaa.gov

http://www.cpc.ncep.noaa.gov

2. PROGRAM REQUIREMENTS

A. Requirement Drivers: (Superscript numbers indicate the Mission Requirement (s) addressing the Program Requirement)

1) Legislation:

a) National Climate Program Act of 1978, 15 U.S.C. § 2901 et seq. - Establish a national climate program including data collection, research, forecasting, and

dissemination.

b) Global Change Research Act of 1990, 15 U.S.C. § 2921 et seq. - Develop a comprehensive U.S. research program to assist the Nation and the world in understanding, assessing, predicting, and responding to human-induced and natural processes of climate variability and global change.

c) National Integrated Drought Information System Act of 2006, H.R.5136 et seq. - Establish a National Integrated Drought Information System within the National Oceanic and Atmospheric Administration to improve drought monitoring and forecasting capabilities.

d) Coastal Zone Management Act, 6 U.S.C. § 1451. Congressional findings (Section 302) et seq. - (l) Because global warming may result in a substantial sea level rise with serious adverse effects in the coastal zone, coastal states must anticipate and plan for such an occurrence. 16 U.S.C. § 1456b.

e) Coastal Zone Enhancement Grants (Section 309) - (a)(2) Prevent or significantly reduce threats to life and destruction of property by eliminating development and redevelopment in high-hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level rise.

f) Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1801 et seq. - Manage commercial and recreational fishery stocks in the U.S. EEZ and encourage an ecosystem approach to fisheries management.

g) Marine Protection, Research, and Sanctuaries Act of 1972, Pub. L. No. 92-532, 86 Stat. 1052 (Oct. 23, 1972) (16 U.S.C. § 1431 et seq., § 1447 et seq.; 33 U.S.C. § 1401 et seq., § 2801 et seq.) - Study the long-range effects of pollution, over fishing, and anthropogenic changes of ocean ecosystems.

2) Policy Decisions:

a) Grand Challenges for Disaster Reduction. National Science and Technology Council Committee on Environment and Natural Resources, Sub-committee on Disaster Reduction (2005) - Undertake drought monitoring and information management activities in the U.S. similar to those that are now part of the National Integrated Drought Information System (NIDIS).

b) NOAA 5-Year Research Plan. Section 6.4.5 - Enhance NOAA's decision support tools to provide climate services for national socio-economic benefits.

c) Policy on Transition of Research to Applications (NOAA Administrative Order (NAO) 216-105) - Maximize the timely application of NOAA-sponsored research and capitalize on non-NOAA research in order to meet mission needs.

d) U.S. Ocean Action Plan - The U.S. should support an integrated approach to oceans management and advance the use of the Large Marine Ecosystems (LME) concept as a tool for enabling ecosystem-based management.

e) Charting the Course for Ocean Science for the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy - Specifies the need for understanding the impact of climate variability and change on the biogeochemistry of the ocean and implications for its ecosystems.

f) Strategic Plan of the U.S. Climate Change Science Program 2003 - Explore the uses and identify the limits of evolving knowledge to manage risks and opportunities related to climate variability and change. Specifies the need for identifying and quantifying the most important feedbacks between ecological systems and global climate change, the potential consequences of global change on ecological systems,

and the options for sustaining and improving ecological systems and related goods and services.

g) 2007 NIDIS Implementation Plan - “NIDIS is intended to serve as an early warning system for drought in the 21st century, to better enable society to respond to periods of sustained drought through improved monitoring, prediction, risk assessment and communication.”

h) Creating a Drought Early Warning System for the 21st Century: The National Integrated Drought Information System (NIDIS) (Western Governors’ Association, 2004) - Establish an integrated drought information system including operational services, research and tool development, monitoring, prediction, and integrated observing systems.

i) A Climate Services Vision: First Steps Toward the Future (National Research Council, 2001) - Develop regional and local climate services and provide an efficient transfer of research into operations. (List of specific requirements addressed by RDS is in appendix).

j) Research Networks for Decision Support in the NOAA Sectoral Applications Research Program (National Research Council, 2007) - Recommendations for future SARP investments: “use-inspired science; workshops to identify, catalyze, and assess the potential of knowledge-action networks in sectors, defined by resource areas; pilot projects to create or enhance a knowledge-action network for supporting climate-relate decisions in a sector.”

3) International Agreements:

a) Strategic Plan for the U.S. Integrated Earth Observing System 2004 - A complete monitoring system that supports risk assessment surveys, providing information critical to improved mitigation strategies and providing systematic and sustained monitoring of regions at risk, including the need for improved observations for disaster warning, global land cover, and sea level, drought, and air quality monitoring. The NIDIS monitoring system is an integral part of the U.S. Integrated Earth Observing System with a strategic plan currently being developed

b) U.S. Integrated Earth Observing System National Integrated Drought Information System Near Term Opportunities Plan. The Near-Term Opportunities (NTO) outlined in the Plan include: (1) Improved Frequency, Timeliness, and Density of Key Observations (within the observations business function); (2) The development of a U.S. Drought Data Portal (USDP) (within the data management business function); (3) New and improved objective drought monitoring, forecast and attribution products at the local level; (4) Improved Coordination of NIDIS Operations (within the coordination business function).

c) Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Working Group II Report – Climate Change Impacts, Adaptation, and Vulnerability. Working Group II assesses the scientific, technical, environmental, economic and social aspects of the vulnerability (sensitivity and adaptability) to climate change of, and the negative and positive consequences for, ecological systems, socio-economic sectors and human health, with an emphasis on regional sectoral and cross-sectoral issues.

d) UN Framework Convention on Climate Change (UNFCCC), Article 4.1(e) & (f): Cooperate in prepare for adaptation to the impacts of climate change including impact assessments and integrated plans for coastal zone management, water resources and agriculture, and for the protection and rehabilitation of areas, particularly in Africa, affected by drought and desertification, as well as floods with a view to minimizing adverse effects on the economy, on public health and on the

quality of the environment.

4) Official Action (driving all Mission Requirements):

a) NOAA Strategic Plan 2006-2011 - develop and contribute to routine state-of-the science climate assessments for informed decision-making, work with customers to deliver climate services, information products, and tools; coordinate the transition of research into operations and applications; and enhance environmental literacy to support improved decision making.

B. Mission Requirements:

1) Build NOAA's capacity to meet user demands for coordinated assessments of research, monitoring, modeling, prediction, impacts, and vulnerabilities, especially for climate variability and change impacts and adaptation strategies that affect water resources, coastal ecosystems and communities, and living marine resources, conduct science and support partnerships for decision support climate research prototype product development.

2) Develop and deliver global to local climate information and services based on user-needs for

a) An end-to-end integrated climate observation, monitoring, research, modeling, forecasting, and prediction system;

b) The acceleration of climate research advances into operations and applications;

c) The development of sector and region specific climate information systems;

d) Improved education and capacity building.

3. LINKS TO THE NOAA STRATEGIC PLAN

NOAA Climate Mission Goal: Understand climate variability and change to enhance society's ability to plan and respond.

A. Goal outcomes

1) A predictive understanding of the global climate system on time scales of weeks to decades to a century with quantified uncertainties sufficient for making informed and reasoned decisions

2) Climate-sensitive sectors and the climate-literate public effectively incorporating NOAA's climate products into their plans and decisions.

B. Goal Performance Objective

1) Improve the ability of society to plan for and respond to climate variability and change.

C. C. Goal Strategies

1) Advance understanding of the weather-climate linkage and sub-seasonal to inter-annual climate predictions and climate change projections by improving analysis of the climate system, using ensembles of multiple, high-end climate and earth models.

2) Develop and contribute to routine state-of-the-science assessments of the climate system for informed decision-making.

3) Work with partners and customers in order to deliver climate services and information products involved in health, safety, environmental, economic, and community planning that increase the effective application of this information.

4) Coordinate transition activities both within and outside NOAA in order to accelerate research advances to new and improved climate products and applications.

5) Support educational efforts to create a more climate-literate public by developing climate educational materials

6) Generate tools and build capacity to use climate information in decision-making

4. PROGRAM OUTCOME(S)

A. The climate-literate public and decision-making community effectively incorporating NOAA's climate products into their routine operations.

B. The nation's principal climate sensitive resource challenges and opportunities are identified and addressed

5. PROGRAM ROLES AND RESPONSIBILITIES

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described in the BOM. Responsibilities of other major participants are summarized below:

A. Participating Line Office, Staff Office, and Council Responsibilities:

1) NOAA Research (OAR) – is responsible for prototype product development and oversees the grant process in the areas of research and transition from research to applications and operations parts of the component through the Climate Diagnostics Center (CDC) and the Climate Program Office (CPO).

2) NOAA National Weather Service (NWS) – is responsible for operational product delivery and support of climate forecasts and information through the Climate Services Division (CSD), the Regional Headquarters, all Weather Forecast Offices (WFOs), Weather Services Offices (WSOs), and River Forecast Centers (RFCs). The National Centers for Environmental Prediction (NCEP) is responsible for development of climate forecast models and tools and for the transition of research advances to operational climate forecasts and related products.

3) NOAA Satellites and Information (NESDIS) – is responsible for data services and support for product development and operational production, through the National Climatic Data Center (NCDC) and the Regional Climate Centers (RCC).

4) NOAA Research Council – provides advice on priority research items for maximum societal benefit.

5) NOAA Education Counsel – ensures education and outreach activities are consistent with NOAA vision and requirements.

6) NOAA Office of General Council – responsible for providing legal services necessary to enable the program to discharge its duties.

B. External Agency/Organization Responsibilities:

1) American Association of State Climatologists – AASC fills a critical spatial gap in NOAA's climate service coverage and provides direct operational support to governors' drought task forces and environmental management programs at the state level.

2) Regional Climate Centers: Oversight for the six Regional Climate Centers is provided by the National Climatic Data Center (NCDC) of the National Environmental Satellite, Data, and Information Service (NESDIS). Each center provides regional dissemination of climate data and information; fosters better use of this information in decision-making; conducts applied research related to climate issues; and improves the coordination of climate-related activities at state, regional and national scales.

3) International Research Institute for Climate and Society – an applied research center at Columbia University funded through the NOAA Climate Program Office, supports climate forecasting, modeling, and research to enhance society's ability to understand,

anticipate and manage climate risk, in order to improve human welfare.

4) Academia and science Non-Governmental Organizations (NGOs) – The Program awards extramural research grants for decision support climate research and transition activities, forms complementary intramural-extramural research partnerships, and supports prototype product and tool development, including those addressing requirements of the Climate Change Science Program.

5) International - The Program awards extramural grants for applied research, prototype product and tool development; and conducts integrated activities with international organizations such as the World Meteorological Organization and Famine Early Warning System.

6. END USERS OR BENEFICIARIES OF PROGRAM

A. INDUSTRY/PRIVATE SECTOR RESOURCE MANAGERS: The Program works with existing private sector partners to develop and provide climate services, including tools, assessments, forecasts, education, and outreach, to mitigate risk and maximize profit from climate and related weather events. The Program abides by the NOAA Policy for Partnerships in the Provision of Environmental Information.

B. FEDERAL, STATE, LOCAL GOVERNMENTS/AGENCIES: The Program provides services, assessments, forecasts, tools, analyses, and information vital to planning and maintenance, for State Drought Task Forces and Environment Agencies, for support of operations to improve timeliness and accuracy of disaster declarations, for the Federal and state management of coastal resources, and for local level decision-making.

C. GENERAL PUBLIC (including Non-Governmental Organizations & Native and Tribal Groups): The Program develops assessments, forecasts, tools, and analyses for decision-making including education and outreach materials.